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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,678	10/11/2001	Kiyoshi Kumata	70840-56589	9445

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EXAMINER	
LEE, RICHARD J	
ART UNIT	**PAPER NUMBER**
2613	

DATE MAILED: 06/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/975,678	KUMATA ET AL.	
	Examiner	Art Unit	
	Richard Lee	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17 and 19* is/are rejected.

7)☒ Claim(s) *18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-11, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi of record (2000-128031) in view of Katta et al of record (US 2004/0085447 A1).

Satoshi discloses a drive recorder, safety drive support system, and anti-theft system as shown in Figures 6-10, and 12, and substantially the same surround surveillance system mounted on a mobile body for surveying surroundings around the mobile body (see Figure 7) as claimed in claims 1, 2, 4, 5, 8, 10, 11, 15, and 17, comprising substantially the same omniazimuth visual system (see 12 of Figure 7), the omniazimuth visual system including at least one omniazimuth visual sensor (i.e., 4 of Figure 7 and see Abstract) including an optical system capable of obtaining an image with an omniazimuth view field area therearound (i.e., vision sensor 12 can observe 360 degrees around the vehicle, thereby providing an omniazimuth view field area therearound, see Abstract) and capable of central projection transformation of the image into an optical image, and an imaging section (i.e., 4, 8 of Figure 7) including an imaging lens for converting the optical image obtained by the optical system into image data; an image processor (i.e., 40 of Figure 7) for transforming the image data into at least one of panoramic image data and perspective image data (i.e., vision sensor 12 can observe 360 degrees around the vehicle, thereby providing a panoramic image, see Abstract); a display section (i.e., 48 of Figure 7) for displaying one of a panoramic image corresponding to the panoramic image data and a perspective image corresponding to the perspective image data; wherein the optical system

includes a hyperboloidal mirror (i.e., 8 of Figure 7) which has a shape of one sheet of a two-sheeted hyperboloid, an optical axis of the hyperboloidal mirror being identical with an optical axis of the imaging lens, and the principal point of the imaging lens being located at one of focal points of the hyperboloidal mirror (see 4, 8 of Figure 7 and Abstract), and the display section (see 48 of Figure 7 and Abstract) displays the perspective image transformed from a bird's-eye image of the mobile body and surroundings thereof ; wherein the at least one omniazimuth visual sensor is located such that a bird's-eye image of the mobile body and surroundings thereof is transformed into the image data (see 4 of Figure 7 and Abstract); the display section (i.e., the display section 48 displays a 360 degree coverage around the vehicle, which includes an image in a direction opposite to a moving direction of the moving body as claimed, see Abstract) displays an image seen in a direction opposite to a moving direction of the mobile body; wherein the image processor transforms image data corresponding to a first area within the omniazimuth view field area around the optical system into first perspective image data (i.e., as provided by 40 of Figure 7, see Abstract); wherein the optical system is positioned such that an optical axis of the optical system is perpendicular to a moving direction of the mobile body (see 12 of Figure 9); wherein the display section simultaneously displays an image seen in a direction opposite to a moving direction of the mobile body and an image seen in a direction which is not identical or opposite to the moving direction of the mobile body (i.e., the 360 degree of coverage around the vehicle provides such simultaneous display, see Abstract); wherein the mobile body is a vehicle (see Figure 9 and Abstract); wherein the image processor includes a storage section (i.e., 42 of Figure 7 and see Abstract) for storing mobile body image data, wherein the mobile body image data is image data obtained by capturing an image of the mobile body, and the display section

displays based on the combined image data a perspective image including the image showing the mobile body (i.e., sensor 12 provides a 360 degree coverage around the vehicle as well as the driver, thereby providing the combination of the mobile body image data and the perspective image data, see Abstract).

Satoshi does not particularly disclose, though, the followings:

(a) a display control section for controlling the display section, wherein the display section simultaneously or selectively displays the panoramic image and the perspective image, wherein in response to control by the display control section, the display section displays an image showing the mobile body on a display screen of the display section such that the mobile body is shown at a predetermined position on a displayed image on the display screen as claimed in claims 1, 3, and 9;

(b) wherein in response to control by the display control section, the image processor transforms image data corresponding to a second area within the omniazimuth view field area around the optical system which does not overlap with the first area into a second perspective image data which does not coincide with the first perspective image data, wherein the second area is identical to an area which is obtained by performing at least one of translational transfer processing and zoom-in/zoom-out processing on the first area as claimed in claims 6 and 7; and.

(c) the image processor combines the mobile body image data from the storage section with the perspective image data derived from the optical system as claimed in claim 15.

Regarding (a) and (b), Katta et al discloses an on-vehicle image display apparatus as shown in Figures 1, 3-6, and 9, and teaches the conventional use of a display control section for controlling the display section (see page 6, section [0073]), wherein the display section

simultaneously or selectively displays the panoramic image and the perspective image (i.e., switching unit 401 of Figure 9 has the capability to select images from among 6 images, the images including panoramic and perspective images, and Figure 4 shows the simultaneous display of panoramic and perspective images, see page 6, sections [0069], [0071], [0073], [0074], page 7, sections [0077], [0078], page 8, sections [0086], [0087]). Therefore, it is considered obvious to use the display control section of Katta et al so that, in response to control by the display control section, the display section of Satoshi may display an image showing the mobile body on a display screen of the display section such that the mobile body is shown at a predetermined position on a displayed image on the display screen as claimed, if such control of the display were not already within Satoshi. In addition, Katta teaches the particular image processings involving the transformation of image data corresponding to a second area within an omniazimuth view field area around the optical system which does not overlap with the first area into a second perspective image data which does not coincide with the first perspective image data, wherein the second area is identical to an area which is obtained by performing at least one of translational transfer processing and zoom-in/zoom-out processing on the first area (see page 8, sections [0086], [0087], page 9, section [0097], page 10, sections [0101], [0102]). Therefore, it would have been obvious to one of ordinary skill in the art, having the Satoshi and Katta et al in front of him/her and the general knowledge of display controls and image transformations, would have had no difficulty in providing the display control section as taught by Katta et al for simultaneously or selectively displaying the panoramic and perspective images of Satoshi and so that the display section of Satoshi may display an image showing the mobile body on a display screen of the display section such that the mobile body is shown at a predetermined position on a

displayed image on the display screen as well as the image transformations involving the zoom-in/zoom-out processing as taught by Katta et al for the first area of Satoshi for the same well known display control and image transformation for manipulation of images for intended and better viewing purposes as claimed.

Regarding (c), it is noted that though the image processor 40 of Figure 7 of Satoshi combines mobile body image data with perspective image data, as provided by the sensor 12 of Figure 7, Satoshi does not teach the image processor combining the mobile body image data from the storage section with the perspective image data derived from the optical system. The Examiner takes Official Notice that the particular use of a storage section for buffering the mobile body image data is old and well recognized in the art. Therefore, it is considered obvious to provide a storage section before the processor 40 of Satoshi et al to thereby provide the buffering of mobile body image data and so that the processor 40 may ultimately combine the mobile body image data from the storage section with the perspective image data derived from the optical system.

3. Claims 12-14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi and Katta et al as applied to claims 1-11, 15, and 17 in the above paragraph (2), and further in view of Tuck of record (4,772,942).

The combination of Satoshi and Katta et al discloses substantially the same surround surveillance system as above, further including the vehicle including a first bumper provided at a moving direction side of the vehicle and a second bumper provided at a side of or the vehicle opposite to the moving direction side (see Figures 9 and 21of Satoshi) as claimed in claim 12.

The combination of Satoshi and Katta et al does not particularly at least one omniazimuth visual sensor includes a first omniazimuth visual sensor placed on the first bumper and a second omniazimuth visual sensor placed on the second bumper, wherein the first omniazimuth visual sensor is placed on one of a right end and a left end of the first bumper with respect to the moving direction of the vehicle, and the second omniazimuth visual sensor is placed on one end of the second bumper which is diagonal to the end of the first bumper where the first omniazimuth visual sensor is placed with respect to a body of the vehicle; the display section displays an image obtained by combining a first perspective image derived from the first omniazimuth visual sensor and a second perspective image derived from the second omniazimuth visual sensor; and wherein, when the display section displays a perspective image of an overlapping region between a display region of a perspective bird's-eye image of the mobile body and surroundings thereof which is obtained through the first omniazimuth visual sensor and a display region of a perspective bird's-eye image of the mobile body and surroundings thereof which is obtained through the second omniazimuth visual sensor, the display section displays based on control by the display control section a perspective image derived from one of the first omniazimuth visual sensor and the second omniazimuth visual sensor as claimed in claims 12-14 and 19. It is noted that Katta et al does teach the particular use of a plurality of first sensors placed on a first bumper (i.e., 2, 6 of Figure 1, and see Figure 4 of Katta et al) for providing an omniazimuth forward view of the vehicle as well as a plurality of second sensors (i.e., 3-5 of Figure 1 of Katta et al), with one being placed on a second bumper (i.e., 4 of Figure 1 of Katta et al) for providing an omniazimuth backward view of the vehicle, the second sensor 4 being place on one end of the second bumper which is diagonal to

the end of the first bumper where the first sensor is place with respect to a body of the vehicle (see Figure 1 of Katta et al), the display section displays an image obtained by combining a first perspective image derived from the first plural sensors and a second perspective image derived from the second plural sensors, with the particular display of an overlapping region between a display region obtained through first sensors and a display region obtained through second sensors (see Figure 4 of Katta et al). Katta et al does not particularly teach at least one omniazimuth visual sensor including a first omniazimuth visual sensor placed on the first bumper and a second omniazimuth visual sensor placed on the second bumper, and the particular display section displaying an image obtained by combining a first perspective image derived from the first omniazimuth visual sensor and a second perspective image derived from the second omniazimuth visual sensor, with the display section displaying a perspective image of an overlapping region between a display region obtained through the first omniazimuth visual sensor and a display region obtained through the second omniazimuth visual sensor as claimed. However, Tuck discloses a display system having a wide field of view as shown in Figures 3 and 4, and teaches the conventional use of a single camera over a plurality of cameras to provide a wide field of view (see column 5, lines 24-35), and the particular display of overlapping images from the first and second omniazimuth visual sensors (see Figure 4). Therefore, it would have been obvious to one of ordinary skill in the art, having the Satoshi, Katta et al, and Tuck references in front of him/her and the general knowledge of panoramic and wide field of viewing systems, would have had no difficulty in providing the single camera omniazimuth field of view and display system of Tuck in place of the plural camera systems 2-6 of Katta et al and the thus modified single camera system to be provided within Satoshi so that

at least one omniazimuth visual sensor including a first omniazimuth visual sensor is placed on the first bumper and a second omniazimuth visual sensor is placed on the second bumper of Satoshi for the same well known reduction of cameras, wide field of viewing, and display of overlapping images from the first and second omniazimuth visual sensors purposes as claimed.

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi and Katta et al as applied to claims 1-11, 15, and 17 in the above paragraph (2), and further in view of Nakamura of record (6,314,364).

The combination of Satoshi and Katta et al discloses substantially the same surround surveillance system as above, but does not particularly disclose wherein the mobile body image data is image data created by using computer graphics software as claimed in claim 16. The particular use of computer graphics software for the creation of images, in general is however old and well recognized in the art, as exemplified by Nakamura (see CPU 6 of Figure 1, column 2, lines 59-67, column 3, lines 31-40). Therefore, it would have been obvious to one of ordinary skill in the art, having the Satoshi, Katta et al, and Nakamura references in front of him/her and the general knowledge of computer generated images, would have had no difficulty in providing the computer generated image system with computer graphics software control as taught by Nakamura within the surround surveillance system of Satoshi to thereby create computer graphics mobile body image data for the same well known graphics control of images for further enhancement/manipulations purposes as claimed.

5. Claim 18 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Regarding the applicants' arguments at pages 7-9 of the amendment filed February 18, 2005 concerning in general that "... According to the specification of the present invention and referring to Fig 5, a panoramic image is a 360 degree round shaped image 510 formatted in polar coordinates that is, first, transformed into a donut-shaped image 515 and, then, transformed into a rectangular image 520 using rectangular coordinates ... Neither of the cited references, however, teaches, mentions or suggest an image processor for transforming perspective image data and/or a display section for displaying a perspective image corresponding to the perspective image data as recited in claimed. Specifically, the Satoshi reference only provides a bird's eye view and a panoramic view. There is no teaching of transforming image data into perspective image data or displaying a perspective image corresponding to the perspective image data. Satoshi also fails to teach a display section that displays the perspective image transformed from the bird's eye image of the mobile body and the surrounds thereof ...", the Examiner respectfully disagrees. The Examiner wants to initially point out that: The Specification is not the measure of invention. Therefore, limitations contained therein can not be read into the claims for the purpose of avoiding the prior art. In re Sporck, 55 CCPA 743, 386 F.2d 924, 155 USPQ 687 (1968). Secondly, it is submitted that the A/D circuit 40 of Satoshi which transforms the analog video signal into a digital video signal nevertheless provides substantially the same if not the same transforming of the 360 degree image data as obtained by sensor 4 into at least one of panoramic image data and perspective image data, as claimed. And since the display section 48 of Satoshi displays the digital image data output from A/D circuit 40, the display section thereby provides substantially the same if not the same display of the perspective image transformed

from a bird's eye image (i.e., as provided by the 360 degree image, see Abstract of Satoshi) of the mobile body and surroundings thereof.

Regarding the applicants' arguments at page 9 of the amendment filed February 18, 2005 concerning in general that "... the composite displays shown illustratively in Katta Figs 4 and 6 are neither panoramic images nor perspective images; rather, they are merely a "cut-and-paste" composite image of multiple images from a plurality of cameras. There is no teaching or suggestion of transforming image data into perspective image data or displaying a perspective image corresponding to the perspective image data ... Nothing in Katta suggests combining the "cut-and-paste" composite image to provide either of a perspective image that can be panned or tilted to provide a variety of perspective views of the same image and/or a 360 degree view of the surroundings of the moving vehicle ...", the Examiner respectfully disagrees. The applicants are reminded again that: The Specification is not the measure of invention. Therefore, limitations contained therein can not be read into the claims for the purpose of avoiding the prior art. In re Sporck, 55 CCPA 743, 386 F.2d 924, 155 USPQ 687 (1968). It is submitted again that Katta teaches substantially the same display control section for controlling the display section (see page 6, section [0073]), wherein the display section simultaneously or selectively displays the panoramic image and the perspective image (i.e., switching unit 401 of Figure 9 has the capability to select images from among 6 images, the images including panoramic and perspective images, and Figure 4 shows the simultaneous display of panoramic and perspective images, see page 6, sections [0069], [0071], [0073], [0074], page 7, sections [0077], [0078], page 8, sections [0086], [0087]). The applicants' attention are further directed specifically to page 8, section [0087] of Katta for the particular teachings of producing a panoramic image from the

video compositing processing. And since Satoshi teaches the particular image processings involving the transformation of image data into perspective image data and the subsequent display of a perspective image corresponding to the perspective image data as explained in the above paragraph, the combination of Satoshi and Katta thereby renders the claimed invention obvious.

Regarding the applicants' arguments at page 10 of the amendment filed February 18, 2005 concerning claims 6 and 7, and in general that neither Satoshi nor Katta teach, mention or suggest transformed image data non-overlapping first and second image, the Examiner respectfully disagrees. As shown in Figure 15A of Katta et al, for example, images captured by the image capture means 111-1, 111-2, and 111-3 are provided as a composite image for display, wherein the images are non-overlapping, and wherein the respective images may first be reduced, enlarged, or **transformed**, and then displayed (see page 9, section [0097]). It is therefore submitted that Katta teaches the particular image processings involving the transformation of image data corresponding to a second area within an omniazimuth view field area around the optical system which does not overlap with the first area into a second perspective image data which does not coincide with the first perspective image data, wherein the second area is identical to an area which is obtained by performing at least one of translational transfer processing and zoom-in/zoom-out processing on the first area (see page 8, sections [0086], [0087], page 9, section [0097], page 10, sections [0101], [0102]), thereby rendering obvious the claimed invention in view of the combination of Katta et al and Satoshi.

Regarding the applicants' arguments at pages 10-11 of the amendment filed February 18, 2005 concerning claims 12-17, and 19, the Examiner wants to point out that such arguments have been addressed in the above.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (571) 272-7333. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with alternate Fridays off.

RICHARD LEE
PRIMARY EXAMINER

Richard Lee/rl

6/17/05